

example, recites that chips are frequency division multiplexed by assigning one chip data signal string per subcarrier. Claim 8 reinforces this feature by subsequently reciting that every chip is assigned to a different subcarrier. These two recitations are not conflicting, as proposed in the Final Rejection, but, instead, are mutually supportive. Assigning one chip per subcarrier has the same meaning as assigning every chip to a different subcarrier, within the context of claim 8. Claims 11-13 similarly recite these features.

More fully, claim 8 describes that information from each of a plurality of transmission signals and a known signal is multiplexed into every chip and each of a plurality of chips is assigned to a different subcarrier. Applicant respectfully submits that this description would not be confusing to one of ordinary skill in the art, as proposed in the Final Rejection (see Final Rejection, sentence bridging pages 2 and 3.)

Claims 10 and 14 each recite a plurality of subcarriers having a separate chip assigned to each subcarrier. The clarity of this recitation is self evident and need not be described in greater detail. However, the Final Rejection seems to conclude that the apparatus and method defined respectively by claims 10 and 14 are

at least partially defined by features recited in claims 8 and 11-13. Specifically, the Final Rejection appears to assert that a multiplexed signal defined by one or more of claims 8 and 11-13 also defines the subject matter of claims 10 and 14 (see Final Rejection page 2, penultimate paragraph). Claims 10 and 14 are each independent claims and do not rely on any of claims 8 and 11-13 to define their respective subject matter.

Claim 9 is rejected solely for depending from rejected claim 8.

In accordance with the above discussion, Applicant submits that claims 8-14 clearly and distinctly define the subject matter Applicant regards as the invention. Therefore, allowance of claims 8-14 is warranted.

Rejections Under 35 USC §102(e)

The Final Rejection proposes that "Applicant contends that Miya does not disclose 'assigning one chip data signal string per subcarrier for transmission'" (Final Rejection section 5, lines 3-5). Applicant submits that the Final Rejection has misconstrued the statements presented in Applicant's Response of April 15, 2004 (hereinafter "Response"). In the Response, Applicant stated that

Miya does not disclose, in the cited portions of the reference, subjecting signals to frequency division multiplexing, which signals include both a transmission signal and a known signal that are spread using different spreading codes, so as to assign one chip data signal string per subcarrier for transmission (Response page 12, penultimate paragraph).

Continuing, the Final Rejection states that Miya discloses in Fig. 5 the feature of spreading transmitting data into $N+1$ channels prior to transmission (Final Rejection section 5, lines 6-8). Applicant provided a detailed discussion of Miya's Figs. 4-6 on page 13 of the Response. As discussed therein (see Response page 13, second paragraph) and repeated here for renewed emphasis, Miya's Fig. 5 discloses that a pilot signal (PL signal) is transmitted through channel 0 alone, as clearly indicated by: (1) the notation "PL Signal" and the arrows drawn from this notation towards the shaded areas within channel 0, whose periods are identified by the notation "Transmission Period of PL Signal" and (2) the lack of shaded PL Signal areas within any other channel illustrated in Fig. 5. Additionally, the Response noted that Miya discloses in Figs. 4 and 5 that transmitting data 101 is separated into $N+1$ channels by separation circuit 102 (Miya col. 4, lines 27-

29, and see Response page 13, lines 7-9). Based on these facts, the Response noted that Miya does not disclose, in the cited portion of the reference, the feature recited in claims 8 and 13 whereby information from both: (1) a plurality of transmission signals and (2) a known signal (e.g., pilot signal) are multiplexed into every subcarrier (Response, paragraph bridging pages 13 and 14).

The Final Rejection appears to acknowledge an understanding of the feature Applicant actually identified in the Response for distinguishing the claims by the statement:

Applicant contends that Miya does not disclose "information from each of the transmission signals and a known signal is multiplexed into every chip assigned to a different subcarrier" (Final Rejection page 6, lines 9-11).

To counter Applicant's remarks, the Final Rejection proposes that Miya discloses this feature in Fig. 2 and column 2, lines 23-37.

However, Miya discloses that Fig. 2 is a channel format in a related art system, as indicated by the discussion of this figure in the Description of the Related Art section of Miya's disclosure and Miya's characterization of this format as a conventional one in the Brief Description of the Drawings section. Moreover, Miya states that his invention overcomes the drawbacks of the related

art systems (as described by Miya in col. 2, lines 30-50) by transmitting the pilot symbols through only one channel (Miya col. 3, lines 7-14). Accordingly, Miya makes clear that the channel format illustrated in related art Fig. 2 is not part of his invention.

In essence, the Final Rejection proposes that the claims are anticipated by the combined features of multiple distinct structures/methods disclosed by Miya. These structures/methods include both: (1) the related art disclosed in Fig. 2 and (2) one or more embodiments of Miya's invention.

However, as mentioned in the Response, it is well-settled that anticipation must be found in a single device or process. *Studiengesellschaft Kohle, M.B.H. v. Dart Indus., Inc.*, 726 F.2d 724, 726-27, 220 USPQ 841, 842 (Fed. Cir. 1984). A finding of anticipation requires that the reference disclose all of the claimed features in a single device and in the arrangement defined by the claim. Because Miya fails to identically disclose the subject matter defined by any of claims 8-14 in a single structure/method, Miya fails to anticipate these claims.

Moreover, the receiver illustrated in Miya's Fig. 7 (which is applied in the rejection of claims 8-14) is not capable of

retrieving the pilot signal disclosed in Miya's Fig. 2. Fig. 2 discloses that pilot symbols 1201 are inserted into each of $N+1$ channels so that a receiver can execute a synchronous detection per each channel using the pilot symbols (Miya col. 2, lines 25-30). The receiver illustrated in Miya's Fig. 7 is only capable of recovering the set of symbols contained within a single channel (see Miya col. 5, lines 55-65). Therefore, in the combination of embodiments suggested by the Final Rejection, Miya's receiver of Fig. 7 could not recover the pilot symbols contained in the channels of Fig. 2 that are spread with codes 1-N. Therefore, the unrecoverable pilot symbol information would be lost to the receiver.

In accordance with the above discussion, Applicant submits that Miya does not anticipate the subject matter defined by claims 8-14. Therefore, allowance of claims 8-14 is warranted.

For completeness, Applicant addresses the specific rejections below.

Claim 8 recites:

*An OFDM-CDMA transmission apparatus comprising:
a first spreader that carries out spreading
processing on a plurality of transmission signals using
different spreading codes respectively;*

a second spreader that carries out spreading processing on at least one known signal using a spreading code different from said spreading codes;

a frequency division multiplexer that breaks down the transmission signals after being spread at said first spreader and the known signal after being spread at said second spreader into individual chips and subjects said chips to frequency division multiplexing by assigning one chip data signal string per subcarrier; and

a transmitter that transmits the transmission signals and the known signal after being subjected to frequency division multiplexing at said frequency division multiplexer, wherein:

information from each of the plurality of transmission signals and the known signal is multiplexed into every chip assigned to a different subcarrier.

Miya fails to disclose identically in a single device the specific type of multiplexer recited in claim 8 in combination with the other recited features. The recited multiplexer is defined as one that multiplexes information from each of a plurality of transmission signals and a known signal into every chip and assigns each of a plurality of such chips to a different subcarrier. The manner in which these features distinguish over any one device/method disclosed by Miya is addressed fully above and, for brevity, this previous discussion is incorporated here only by reference. Additionally, the Office is reminded that Miya is disqualified as a §103(a) reference against the present application under the provisions of 35 USC §103(c).

Accordingly, Applicant submits that Miya does not anticipate the above-noted subject matter defined by claim 8. Therefore, allowance of claim 8 and dependent claim 9 is warranted.

Claim 13 recites the distinguishing features of apparatus claim 8, but with respect to a method. For similar reasons that these features distinguish claim 8, so too do they distinguish claim 13. Therefore, allowance of claim 13 is warranted.

Claim 10 defines a reception apparatus that recovers a plurality of transmission signals and a known signal from each received chip of a plurality of chips that are assigned to separate subcarriers. The remarks presented above in connection with distinguishing the frequency division multiplexer of claim 8 from Miya are similarly applicable for distinguishing the reception apparatus of claim 10, for the reason that the multiplexer and reception apparatus perform inverse operations with respect to the multiplexed signal recited in each claim. Therefore, allowance of claim 10 is warranted.

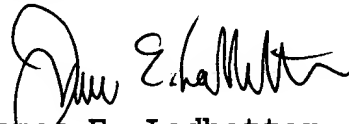
Claim 14 recites the distinguishing features of apparatus claim 10, but with respect to a method. For similar reasons that these features distinguish claim 10, so too do they distinguish claim 14. Therefore, allowance of claim 14 is warranted.

Claims 11 and 12 recite the features distinguishing claims 8 and 10 from Miya. For similar reasons that these features distinguish claims 8 and 10, so too do they distinguish claims 11 and 12. Therefore, allowance of claims 11 and 12 is warranted.

In view of the above, it is submitted that this application is in condition for allowance and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,



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